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Amendments to the Claims

1. (Currently Amended) A transmitter for use in an optical communication system, said transmitter comprising

means for generating a stream of RZ optical pulses in which alternate ones of such pulses have essentially orthogonal polarizations, and

means for modulating the phase of said optical pulses as a function of input ~~data~~ applied to said transmitter to encode said input data onto said stream of RZ optical pulses.

2. (Original) The invention defined in claim 1 wherein said modulating means is a phase shift keyed (PSK) modulator.

3. (Original) The invention defined in claim 1 wherein said modulating means is arranged to modulate said optical pulses in accordance with the differences between successive bits in said input data.

4. (Currently Amended) A transmitter for use in an optical communication system, said transmitter comprising

means for generating first and second streams of RZ optical pulses in which pulses in said first stream have essentially orthogonal polarizations with respect to pulses in said second stream, and

means for modulating the phase of said optical pulses in said first and second streams as a function of first and second streams of input data applied to said transmitter, respectively, to encode said first and second streams of input data onto said first and second streams of RZ optical pulses, respectively.

5. (Original) The invention defined in claim 4, wherein said first and second streams of optical pulses each have the same first wavelength, and wherein said transmitter further includes a wavelength division multiplexer for combining the output of said modulation means with at least a second modulated optical signal having a wavelength different from said first wavelength.

6. (Original) The invention defined in claim 4 wherein said optical pulses are solitons.

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7. (Currently Amended) An optical communication system arranged to transmit at least one stream of input data from a transmitter to a remote receiver, said system comprising

a transmitter for generating a stream of RZ optical pulses in which alternate ~~ones~~ of such pulses have essentially orthogonal polarizations, and for modulating the phase of said optical pulses as a function of said input data applied to said transmitter to encode said input data onto said stream of RZ optical pulses, and

an optical communication channel for transmitting the modulated optical pulses from said transmitter to said remote receiver.

8. (Original) The invention defined in claim 7 wherein said system further includes a demodulator for recovering said at least one stream of input data from said modulated optical pulses received at said remote receiver.

9. (Currently Amended) A method for transmitting input data using an optical communication system, said method comprising the steps of
generating a stream of RZ optical pulses in which alternate ones of such pulses have essentially orthogonal polarizations, and

modulating the phase of said optical pulses as a function of said input data to encode said input data onto said stream of RZ optical pulses.

10. (Original) The method defined in claim 9 wherein said modulating step includes phase shift keying of said optical pulses in a PSK modulator.

11. (Original) The invention defined in claim 9 wherein said modulating step includes modulating said optical pulses in accordance with the differences between successive bits in said input data.

12. (Currently Amended) A method for transmitting input data using an optical communication system, said method comprising the steps of

generating first and second streams of RZ optical pulses in which pulses in said first stream have essentially orthogonal polarizations with respect to pulses in said second stream, and

modulating the phase of said optical pulses in said first and second streams as a function of first and second streams of input data, respectively, to encode said first and

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second streams of input data onto said first and second streams of RZ optical pulses, respectively.

13. (Original) The method defined in claim 12, wherein said first and second streams of optical pulses each have the same first wavelength, and wherein said method further includes the step of combining, in a wavelength division multiplexer, ~~the~~ phase modulated optical pulses generated in said modulation step with at least a second modulated optical signal having a wavelength different from said first wavelength.

14. (Original) The invention defined in claim 12 wherein said optical pulses are solitons.

15. (Currently Amended) An optical communication method for transmitting at least one stream of input data from a transmitter to a remote receiver, said method comprising the steps of

generating a stream of RZ optical pulses in which alternate ones of such pulses have essentially orthogonal polarizations, and modulating the phase of said optical pulses as a function of said input data applied to said transmitter to encode said input data onto said stream of RZ optical pulses, and

transmitting the modulated optical pulses from said transmitter to said remote receiver via an optical communication channel.

16. (Original) The invention defined in claim 15 wherein said method further includes demodulating said modulated optical pulses received at said remote receiver to recover said at least one stream of input data.